

OBSERVATIONS ON MOSQUITO SPECIES IN NASSAU COUNTY,  
LONG ISLAND, N. Y., BASED ON LARVAL AND ADULT  
COLLECTIONS DURING THE TEN-YEAR PERIOD

1947-1956

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The collection and identification of mosquitoes are routine activities in the mosquito control program conducted by the Nassau County Department of Public Works. Daily collections are made from eleven standard New Jersey type mosquito light traps operated in locations on the

south shore of the county, from May to September. Larval samples are taken also from breeding sources discovered by field inspection crews. Species determinations are made in the laboratory, and findings are recorded.

The information for this paper has been

obtained from larval and adult collection records covering the ten-year period 1947-1956. Eighteen species were recorded during this period. The notes presented below for each species give the types of breeding sources, larval association and seasonal occurrence in larval and adult stages. When observations on biting habits were made they are also given.

*Anopheles crucians* Wiedemann. Few larvae were collected from August to September in fresh-water ponds; larval association with *An. punctipennis*. Small number of adults taken in light traps from August to September.

*Anopheles punctipennis* (Say). Larvae were collected from July to September in streams, pools and ponds; maximum collections taken in August; larval association with *Culex pipiens* in fresh-water streams, with *An. quadrimaculatus* and *An. crucians* in f.w. ponds and with *Aedes canadensis* in woodland pools. A few adults were taken in light traps from July to September.

*Anopheles quadrimaculatus* Say. Larvae were collected from July to September in fresh-water ponds; maximum collections taken during August and early September; larval association with *An. punctipennis*, *Culex territans* and *Uranotaenia sapphirina*. A small number of adults were taken in light traps during August and female specimens have been taken in shelters from September to March.

*Aedes canadensis* (Theobald). Larvae were collected from March to August in fresh-water woodland pools and swamps; maximum collections taken in April and May, the number of collections dropping sharply after May. Larval association with *A. cantator* in pools adjacent to salt marsh, with *An. punctipennis*, *Culex territans* and *Aedes vexans* in woodland pools, with *Culex restuans* in f.w. swamps and pools, and with *C. pipiens* in f.w. swamps. Very few adults taken in light traps. Observed in woodland during daytime with few biting.

*Aedes cantator* (Coquillett). Larvae collected from April to September in

ditches, wet areas, holes and pools on or adjacent to salt marshes; maximum collections taken from May to July. Larval association with *A. sollicitans* and *Culex salinarius* on salt marshes and with the following species in fresh-water pools on or adjacent to the salt marsh: *A. canadensis*, *A. vexans*, *C. pipiens* and *C. restuans*. Adults were taken in all light traps from May to September, maximum catches occurring during August. Observed biting outdoors in salt marsh areas and upland areas day and night.

*Aedes sollicitans* (Walker). Larvae collected from May to October in the following types of breeding places on salt marshes: ditches, flooded areas, pools, holes and bogs; maximum collections taken in June, August and September. Larval association with *A. cantator*, *A. vexans*, *Culex pipiens* and *C. salinarius* in pools and ditches on the upper salt marshes. Adults were taken in all light traps from May to September, the maximum catch occurring during August. Observed biting outdoors in salt marsh and upland areas day and night, and at times in screened porches.

*Aedes triseriatus* (Say). Larvae were collected from April to July in rot cavities of trees. No larval association with the exception of one instance in which larvae were found in a wooden barrel in association with *Culex restuans*. Adults taken in light traps during July. Observed biting outdoors at dusk.

*Aedes taeniorhynchus* (Wiedemann). No larvae collected. A very few adults taken one year in one trap location during August.

*Aedes vexans* (Meigen). Larvae collected from April to September in fresh-water swamps, ditches, pools and flooded areas (rain-water); maximum larval collections taken during April and May. Larval association with *A. cantator*, *A. sollicitans* and *Culex salinarius* in wet areas on upper salt marshes, with *C. pipiens* and *C. restuans* in f.w. swamps and wet areas, with *A. canadensis* in woodland pools, and with *C. territans* in f.w.

ditches. Adults taken in all light traps from May to September, maximum catches occurring during June. Observed biting outdoors day and night.

*Culex pipiens* Linnaeus. Larvae collected from May to October in the following types of fresh-water breeding places: pools, swamps, ponds, streams, ditches, dumps, excavations, cellars, sewage disposal beds, cesspools, manure piles, street catch-basins, street gutters, roof gutters and artificial containers of every description. All breeding places were in the proximity of homes and contained rain-water or ground water not affected by daily tides. Maximum collections were taken from July to September. Larval association occurred with *C. restuans* in catch-basins, swamps, pools, ponds, streams and manure piles, with *C. salinarius* in pools on upper salt marshes and adjacent upland, with *Aedes cantator* and *A. sollicitans* in ditches on upper salt marshes, with *A. vexans* in upland swamps and wet areas, with *C. territans* in f.w. streams and swamps, with *A. canadensis* in woodland pools, and with *An. punctipennis* in f.w. streams. Adults were taken in all light traps from May to September, the maximum catch occurring during August. Observed biting outdoors and indoors during day and night. Females found indoors throughout winter and early spring.

*Culex restuans* Theobald. Larvae collected from May to September in fresh-water swamps, streams, pools, ponds, artificial wooden containers, catch-basins and manure piles; maximum collections taken from June to August. Larval association with *C. pipiens* in swamps, pools, ponds, streams, catch-basins and manure piles, with *Aedes vexans* in swamps, with *A. cantator* and *C. salinarius* in f.w. pools on or adjacent to salt marshes, with *C. territans* in f.w. pools and streams, with *A. canadensis* in woodland pools, and with *A. triseriatus* in a wooden barrel. Adults taken in all light traps from May to September, maximum catches occurring during August.

*Culex salinarius* Coquillett. Larvae collected from May to September in ditches, wet areas, pools and ponds on or adjacent to salt marshes; maximum collections taken in September. Larval association with *Aedes cantator* and *A. sollicitans* in pools and ditches on upper salt marshes, with *C. pipiens* and *C. restuans* in f.w. pools on upper salt marshes, with *A. vexans* in f.w. wet areas near salt marshes, and with *C. territans* in f.w. pond near the salt marsh. Adults taken in light traps located within 1/2 mile from salt marshes from June to September.

*Culex territans* Walker. (Prior to 1956 identified as *Culex apicalis* Adams.\*) Larvae collected from May to September in fresh-water swamps, pools, ponds, streams and ditches; maximum collections taken during July and August. Larval association with *C. pipiens* in f.w. swamps and streams, with *C. restuans* in streams and pools, with *An. quadrimaculatus* and *U. sapphirina* in ponds, with *A. vexans* in f.w. ditches, with *A. canadensis* in woodland pools, and with *C. salinarius* in f.w. pond near salt marsh. A few adults taken in light traps during September.

*Culiseta inornata* (Williston). No larvae discovered. One adult taken in a light trap during August 1947.

*Culiseta melanura* (Coquillett). Larvae found during May 1947 in one breeding place, a fresh-water pool created by the upthrust roots of a fallen tree in a thickly wooded area. No adults taken in light traps.

*Mansonia perturbans* (Walker). No larvae found. Breeding places revealed by presence of newly emerged adults—all such places being ponds or sandpits filled with ground water and containing dense stands of fox-tails. Adults taken in light traps located near breeding sources from June to September, maximum catches

\* Pratt, Harry D. 1956. A Check List of the Mosquitoes (Culicinae) of North America (Diptera: Culicidae). Mosquito News 16(1):4-10, March 1956.

taken during June and July. Observed biting outdoors at dusk.

*Orthopodomyia signifera* (Coquillett). Larvae found in water contained in rot cavity of tree during August of one year. Adults also taken in nearby light trap.

*Uranotaenia sapphirina* (Osten Sacken). Larvae collected from July to September in fresh-water ponds in association with *An. quadrimaculatus* and *C. territans*. A few adults taken in light traps during September. No observations on biting.

The prevalence of these species in trap collections for the ten year period 1947-1956 is shown in the following tabulation:

<i>C. pipiens</i>	33,216—57.%
<i>C. restuans</i>	9,751—17.%
<i>A. sollicitans</i>	9,558—16.%
<i>A. vexans</i>	3,020—5.%
<i>A. cantator</i>	1,694—1.%
<i>M. perturbans</i>	471
<i>C. salinarius</i>	158
<i>C. territans</i>	55
<i>An. crucians</i>	26
<i>An. quadrimaculatus</i>	24
<i>A. triseriatus</i>	23
<i>An. punctipennis</i>	22
<i>A. canadensis</i>	13
<i>U. sapphirina</i>	10
<i>A. taeniorhynchus</i>	7
<i>O. signifera</i>	1
<i>C. inornata</i>	1
<i>C. melanura</i>	0
	58,056—100.%

## OPERATIONAL AND SCIENTIFIC NOTES

ANOTHER INSTANCE OF GYNANDROMORPHISM IN *Culex Salinarius* Coq. Roth (1948)<sup>1</sup> reported two cases of gynandromorphism in *Culex salinarius* Coq, which were submitted to this laboratory for determination. These specimens were taken at Fort Gordon, Georgia, on May 27 and June 23, 1943, at resting station number four. These specimens exhibited male antennae and palpi with female abdomens and genitalia.

On May 20, 1957, a shipment of mosquitoes was received at this laboratory from Robins Air Force Base, Georgia, for determination. This material was taken on the night of May 16, 1957, in light traps which are used in routine surveys at many government installations for the determination of indices for mosquito control. Trap number three, in which the specimens were predominantly *Culex salinarius*, yielded another gynandromorph. Other specimens in this collection were normal and consisted of 480 *Culex salinarius*, 23 *Aedes vexans*, 3 *Anopheles crucians*, 2 *Aedes mitchellae*, 2 *Culex quinquefasciatus*, and 1 *Culiseta melanura*.

This gynandromorphic *Culex salinarius* was badly rubbed and had all its tarsal segments lost. The genitalia were withdrawn into the abdominal cavity making it necessary to remove and clear them in KOH to establish the identity of the specimen. The characteristics exhibited by this

specimen were female antennae and palpi and a male abdomen and genitalia.

This specimen is now on deposit in the mosquito collection at this laboratory.—Robert Davis, Third U. S. Army Medical Laboratory, Fort McPherson, Ga.

NOTE ON THE OCCURRENCE OF *Aedes atropalpus* (Coq.) IN WESTERN MARYLAND. On August 15, 1957, numerous larvae of *Aedes atropalpus* were found in rock holes at the junction of Muddy Creek and the Youghiogheny River in Garrett County, Maryland, less than 10 miles east of the West Virginia line. Pupae were also abundant and two adults were reared. This area is within the Swallow Falls State Forest and is part of a recreational area designed for visits to Muddy Creek Falls and Swallow Falls. The Youghiogheny River flows into the Monongahela which, of course, joins the Allegheny at Pittsburgh to form the Ohio. It is of interest that this species has been found in the Monongahela Basin. There are published records of its occurrence in rock holes along the Potomac River and along its tributary, the Shenandoah, near Charles Town, West Virginia; along a tributary of the South Fork of the Shenandoah near Rawley Springs (Rockingham County), Virginia; and along the Susquehanna River at Shenk's Ferry (Lancaster County), Pennsylvania. It is abundant in rock holes along the James River near Richmond but has not been reported along the Rappahannock nor the Patuxent.—William E. Bickley

<sup>1</sup> Roth, Louis M., Mosquito News, Vol. 8, No. 4, pp. 168-174.